

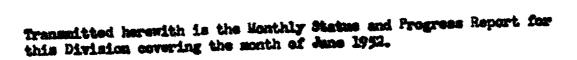
M. W. Boyer, General Manager

July 16, 1952

John C. Bugher, Director, Division of Biology and Medicine

MONTHLY STATUS AND PROCRESS REPORT, JUNE 1952 -DIVISION OF BIOLOGY AND MEDICINE

SYMBOL: HALA: ROM



Englowure: Report

BEST COPY AVAILABLE

CC: J. H. Burchard

O'NEILL: emr

#1 - Boyer #2 - Burchard #3 & 4 - Laner cy 6 disting 1 10/52 - 60C #5 & 6 - Files

DOE 5650.2 111-12
CLASSIFICATION CANCELLED
BY AUTHORITY OF DOE/OC
TOSE DIAZ 4-15-81 REVIEWED BY DATE
1121121122 23
W. A. STRAUSER 4-17-81 REVIEWED BY DATE
11 2 11 11 21 11 29

BY: Dick KOOGLE 6-9-87

When	separated	from	enclosu	res,	handle	UHLD	document
		h	nelasi	il			, _

Hinsert proper (lassification)

US DOE ARCHIVES 326 U.S. ATOMIC ENERGY **COMMISSION**

WITH EMCLOSURES CONFIRMED TO BE UNCLASSIFIED DOE/OFFICE OF DECLASSIFICATION M. L. KOLBAY, A.D.C. GNEW DATE: W/1/44

RG	DOE	HIST	ORIAN	(DBM)
ΙCO				

Collection __1/32

Box _ 3363

Folder _ # 2/

				 ,	
	Admin	Exec. Off	Director	 	
OFFICE ► SURNAME ►	O'Neille	Brown	Dr. Bugher		
SURNAME >	n/36/rd	7-17			
DATE	11_==1./			 July	

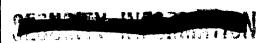
Form AEC-318

US DOE ARCHIVES 326 U.S. ATOMIC ENERGY COMMISSION

RG _	DOE	HISTORIAN	(DBM)
Collec	ction	1132	
Box _	336.	3	

Folder #21

DEUNLI

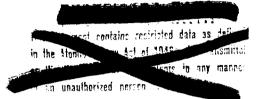




CONTRLY STATUS AND PROGRESS REPORT

Division of Biology and Medicine

MONTH OF JUNE, 1952

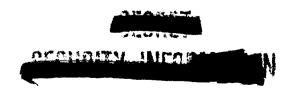


Research Activities

Radiation Protection through Cross Circulation. (UNCLASSIFIED) An extensive study of the effects of ionizing radiation on parabiotic rats has been completed under an AEC project at the New England Deaconess Cancer Research Institute in Boston. Experiments were performed by joining together two animals of the same sex and of comparable age and weight. A fairly complete interchange of circulating blood was thus provided between the animals, and varying dosages of ionizing radiation were given to only one member of the joined pair. The results of the experiments clearly demonstrate that there was no pathologic evidence of injury produced in the non-irradiated animal such as might be mediated by circulating substances, and that some protection was provided by the non-irradiated animal via the blood stream to the irradiated one of the pair.

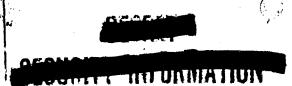
Study of Sub-Human Primates in Aircraft. (Members of the Division met at Oak Ridge with Oak Ridge National Laboratory and U.S. Air Porce (School of Aviation Medicine Primate Laboratory at Austin, Texas) personnel to discuss a cooperative study on the effects of various levels of radiation to occupants of nuclear aircraft.

The need for a long-term experiment with sub-human primates was recognized. However, in view of the magnitude of the project, it was agreed that some preliminary data were required to cope with the problems of such an experiment and to eliminate the necessity of transporting animals several times between Austin and Cak Ridge. It was planned therefore to initiate a pilot project at Cak Ridge as soon as possible using the Bulk Shielding Facility. Data obtained from the study would be useful in guiding ORNL research on



US DOE ARCHIVES 326 U.S. ATOMIC ENERGY COMMISSION

•		
RG_	DOE HISTORIAN (OBM)	
Colle	ction - 1/32	
Box	3363	
Fold	er _ # 21	



- 2 -

shielding and to the Air Force Group at Austin, Texas, in setting up the lang-term program.

Tentative designs were approved for the experiment at Austin, Texas, in which artificial sources would be used, and for the pilot experiment to be conducted at Cak Ridge.

Tissue Equivalent Chamber, (UNCLASSIFIED) The AEC-Columbia
University research group recently reported the completion of a
prototype dosimeter which will measure multiple types of radiation.
The device, known as a Tissue Equivalent Chamber, is constructed out
of plastic material that has approximately the same ratio of hydrogen, nitrogen, carbon, and exygen as body tissue. Time, the physical
response of the chamber to radiation is similar to that which occurs
in body tissue. Reployed as an "all-purpose" integrating chamber
measuring I-rays, games rays, and neutrons, it will be possible to
measure dosages with a such greater degree of accuracy than with
present instruments. This characteristic will make the new instrument of such value to health physics and biological programs.

In order to make this instrument available commercially at an early date, the Radiation Instruments Branch plans to initiate an engineering development contract. Several major instrument companies have already expressed an interest in undertaking this work.

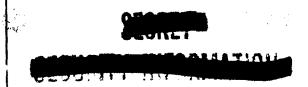
Studies of Wetabolism of Bone-Seeking Elements. (UNCLASSIFIED)
In order to better understand the metabolism of bone-seeking elements and to evaluate dosage-distribution patterns and their biological affects, a series of investigations are under way under the AEC-Wassachusetts Institute of Technology project. These include:

and the clinical history of 30 kmman cases who received certain radioactive substances more than 22 years ago. It was found in this particular group studied that neoplasms were the sole cause of death attributable to stored radium and mesotherium. Those neoplasms were produced by internally deposited radium in concentrations between 0.7 - 23 micrograms fixed radium. The latent period for the production of these tamors varied from approximately 8 to 30 years.



US DOE ARCHIVES 326 U.S. ATOMIC ENERGY COMMISSION

RG_	DOE	HISTORIAN	(DBM)
Colle	ection	1132	
Box	3363	3	
17-14		⊢ フ	



- 3 -

b. Use of Ca-45. Such techniques as bone grafting of a "hot" graft to a "gold" host, and vice versa; and intravenous injections of labeled Ca-45 are employed. The results of the data are still tentative, but one set of experiments shows the disappearance of Ca-45 from the serum is exponential, with the specific activity of the bone in a puppy exceeding the blood specific activity at 2-3 hours after injection.

Radiation Instruments Program

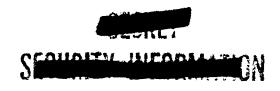
Instrument Evaluation, (UNCLASSIFIED) Continuing emphasis is being given to improving and extending the utility of standard instruments in the radiation detection field. Recent steps to coordinate these efforts were:

- a. AEC offices and contractors at St. Louis, Cak Ridge, and Savannah River were visited. Discussions were held to outline the Commission-wide coordination plans, and to assure close limison on instrumentation matters between the respective areas and the Division.
- b. In cooperation with the Industry Evaluation Board of the Department of Commerce, a detailed study has been prepared of critical radiation instruments and components to evaluate the industrial capacity and physical security of companies producing critical items.

Westing of Steering Committee (Electron Tube Program).

(UNCLASSIFIED) The Steering Committee for the Special Electron Tube Development Program will meet with technical personnel from the AEC national laboratories in New York on July 29, 30, and 31.

The Counittee functions to give technical guidance on the feasibility of developing special electron tubes, and negotiating plans with industry for production and development studies. The requests received for tubes to be used in specialized ways vary, and may not always be of general interest to other AEC installations. However, the Committee endeavors to meet the special demands and arranges the work with the contractor for only a limited



-4-

production of the item needed. The production of photomultiplier tubes for use with scintillation counters is an important item in this program. These are presently provided under a contract with Radio Corporation of America, and negotiations also are underway with the Allen B. DuMont Laboratories.

Rediction Instruments Catalog. (UNGLASSIFIED) The 1952
Rediction Instruments Catalog now being ecopiled will include up-to-date material on new companion and instruments. Catalog information has been requested from 82 manufacturers of radiction instruments and allied equipment on submission of data, characteristics, and photographs of new instrument models. The edition will be published in loose-leaf form which will permit periodic revisions to keep page with the expending field. Distribution will be limited to AEC installations and contractors directly engaged in the atomic energy program. The catalogs will not be available for purchase as in the past.

US DOE ARCHIVES 326 U.S. ATOMIC ENERGY COMMISSION

RG DOE	HISTORIAN	CUBMI
Collection	1132	
Box 3363		
Folder #	2/	

